CLAIMS

1. An electrode for electric double layer capacitors comprising a polarizable porous sheet comprising conductive materials including a carbonaceous electric double layer forming material, a carbon material for ensuring conductivity, and a binder integrated via a conductive intermediate layer on at least one surface of a collector; wherein the conductive intermediate layer contains synthetic rubber and two or more carbon materials having different particle diameters.

2. The electrode for electric double layer capacitors according to claim 1, wherein a material containing platelet-like graphite is the carbon material of the conductive intermediate layer.

3. The electrode for electric double layer capacitors according to claim 1, wherein a material containing carbon black is the carbon material of the conductive intermediate layer.

4. The electrode for electric double layer capacitors according to claim 1, wherein the synthetic rubber of the conductive intermediate layer is styrene-butadiene rubber.

5. The electrode for electric double layer capacitors according to claim 4, wherein the styrene-butadiene rubber has a glass transition temperature of –5 to 30°C.

6. The electrode for electric double layer capacitors according to claim 1, wherein the conductive intermediate layer is formed using a conductive adhesive containing the carbon material, the synthetic rubber, and a dispersion medium; and the entire amount of carbon material is 3 to 30 mass% in the conductive adhesive.

7. The electrode for electric double layer capacitors according to claim 6, wherein the synthetic rubber is 7 mass% or less in the conductive adhesive.

8. The electrode for electric double layer capacitors according to claim 1, wherein the polarizable porous sheet has an average particle diameter of 0.1 to 5 μm and a porosity of 40 to 90%.

9. The electrode for electric double layer capacitors according to claim 1, wherein the collector is composed of aluminum.

10. The electrode for electric double layer capacitors according to claim 1, wherein the collector has been subjected to a surface roughening treatment.

11. A method for manufacturing an electrode for electric double layer capacitors, characterized in that a conductive adhesive (C) containing a synthetic rubber, two or more types of carbon material having different particle diameters, and a dispersion medium is applied to a joining surface of a collector (B) and/or a polarizable porous sheet (A) comprising constituent materials including a carbonaceous electric double layer forming material, a carbon material for ensuring conductivity, and an adhesive; and, before the dispersion medium dries, the collector and polarizable porous sheet are glued together and compressed, thereby causing part of the nonvolatile component of the conductive adhesive to be pressed into the holes of the polarizable porous sheet.

12. An electric double layer capacitor characterized by having the electrode for electric double layer capacitors according to claim 1.

13. A conductive adhesive for forming a conductive intermediate layer used in an electrode for electric double layer capacitors obtained by integrating a polarizable porous sheet, which comprises constituent materials including a carbonaceous electric double layer forming material, a carbon material for ensuring conductivity, and a binder, onto at least one surface of a collector via the conductive intermediate layer; with the conductive adhesive being characterized by containing two or more types of carbon material having different particle diameters, a synthetic rubber, and a dispersion medium.

14. The conductive adhesive according to claim 13, which contains platelet-like graphite as the carbon material.

15. The conductive adhesive according to claim 13, which contains carbon black as the carbon material.

16. The conductive adhesive according to claim 13, wherein the synthetic rubber is styrene-butadiene rubber.

17. The conductive adhesive according to claim 16, wherein the styrene-butadiene rubber has a glass transition temperature of –5 to 30°C.

18. The conductive adhesive according to claim 13, wherein the total of the carbon material in the conductive adhesive is 3 to 30 mass%.

19. The conductive adhesive according to claim 18, wherein the synthetic rubber is 7 mass% or less in the conductive adhesive.